

Serial No. **10/026,775**  
Reply to Office Action of June 16, 2006

Docket No. **HI-0069**

**AMENDMENTS TO THE DRAWINGS**

The attached drawings include corrections to FIG. 1 to correct typographical errors. In particular, in FIG. 1 “PSDN1” is amended to --PDSN1-- and “PSDN2” is amended to --PDSN2--. These amendments are consistent with the specification. No new matter is added.

Attachments: Annotated Sheet  
Replacements Sheet

**REMARKS**

Claims 1-29 are pending in this application. By this Amendment, the specification, FIG. 1 and claims 1, 2, 5-8 and 10-13 are amended and new claims 15-29 are added. Various amendments are made for clarity and are unrelated to issues of patentability.

Applicant gratefully acknowledges the Office Action's indication that claims 5, 7-8 and 13 contain allowable subject matter. However, as set forth below, all claims are believed to define patentable subject matter.

The Office Action rejects claims 1-3, 6 and 9-10 under 35 U.S.C. §103(a) over U.S. Patent 6,512,756 to Mustajarvi et al. (hereafter Mustajarvi) in view of U.S. Patent 6,912,402 to Haumont et al. (hereafter Haumont). The Office Action also rejects claims 4, 11-12 and 14 under 35 U.S.C. §103(a) over Mustajarvi, Haumont and further in view of U.S. Patent 6,865,163 to Bergenwall et al. (hereafter Bergenwall). These rejections are respectfully traversed with respect to the pending claims.

Independent claim 1 relates to an apparatus for IP multicasting/broadcasting (M/B) transmission. The apparatus includes a base station system and a mobile terminal. Various features of independent claim 1 further relate to an IP M/B packet. For example, features of independent claim 1 include the base station system converting the IP M/B packet into a cellular M/B request message, transmitting the cellular M/B request message into the BTS, segmenting the IP M/B packet into a radio frame size and transmitting radio frames of the IP M/B packet. Furthermore, independent claim 1 recites the mobile terminal receiving and assembling the segmented radio frames of the IP M/B packet to form the IP M/B packet.

The applied references do not teach or suggest all the features of independent claim 1. More specifically, when discussing independent claim 1, the Office Action cites Mustajarvi as disclosing the various features such as the claimed base station system, mobile terminal, and M/B link access control means. The Office Action primarily cites Mustajarvi's cols. 2-3 for the features of independent claim 1. The Office Action further states (on page 2) that Mustajarvi does not discuss the packet as being a multicast/broadcast IP packet. The Office Action then relies on Haumont's col. 2, lines 10-12 and col. 4, line 64-col. 5, line 1 as disclosing that a GPRS system includes a PDSN that supports IP multicast. The Office Action then states it would have been obvious to support multicasting in Mustajarvi's system. However, applicant respectfully submits that the claimed features would not have been obvious, and that the applied references do not teach or suggest all the features of independent claim 1.

More specifically, the present specification and claims are clearly related to multicast/broadcast (M/B) transmission. For example, page 3, line 20-page 4, line 14 of the present specification discusses problems of mobile communication systems that require various PDSNs transmitting broadcasting messages to mobile terminals via specific PPP links. As stated as one problem, every mobile terminal must visit each PDSN to establish the PPP link and the M/B message is transmitted via the established PPP link. However, this may result in a channel for transmitting the PPP datagram to be allocated to every mobile terminal thereby wasting channel resources. Applicant respectfully submits that Mustajarvi does not relate to multicast/broadcasting transmission and accordingly does not recognize the problems associated therewith (and as discussed in the present application).

Furthermore, applicant respectfully submits that Mustajarvi merely relates to communications of a single mobile station in order to transmit data over a logical link. The cited sections in cols. 2-3 relate to different layers that may be utilized for transmission of the data over the logical link. Mustajarvi's disclosure does not relate to multicasting/broadcasting and therefore there is no suggestion for this methodology to be used with multicasting/broadcasting. Also, there is no suggestion to modify Mustajarvi's disclosure since multicasting/broadcasting is performed using a different methodology than the methodology disclosed in Mustajarvi. Applicant respectfully submits that there is no suggestion for the transmission of multicasting/broadcasting packets as specifically recited in independent claim 1. Further, there is no suggestion to modify Mustajarvi as alleged in the Office Action to find the claimed features.

Additionally, Mustajarvi also does not teach or suggest converting the IP M/B packet into a cellular M/B request message, segmenting the IP M/B packet into a radio frame size and transmitting radio frames of the IP/MB packet. Mustajarvi does not relate to a cellular M/B request message. The other applied references also do not each or suggest these missing features of independent claim 1.

For at least the reasons set forth above, the Office Action's combination does not suggest all the claimed features. Accordingly, independent claim 1 defines patentable subject matter at least for these reasons.

Independent claim 10 also relates to IP multicast/broadcast packet transmission. More specifically, independent claim 10 recites storing the Internet IP M/B packet into an internal buffer and segmenting the Internet IP M/B packet into a radio packet frame size. There is no

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suggestion in the applied references for storing of an IP M/B packet into an internal buffer and segmenting the packet. Furthermore, the applied references do not teach or suggest adding sequence numbers to the segmented radio packet frames and transmitting a CIBP SDU to a mobile terminal, as recited in independent claim 10. Still further, the applied references do not teach or suggest assembling the CIBP SDU for the received radio packet frames and forming the IP M/B packet, and transferring the formed packet into an upper layer of the mobile terminal, as recited in independent claim 10. That is, the applied references do not relate to a CIBP SDU. For at least the reasons set forth above, the applied references do not teach or suggest all the features of independent claim 10. Accordingly, independent claim 10 defines patentable subject matter.

Independent claim 21 recites receiving a IP M/B packet at a base station system from a packet data serving node (PDSN), converting the IP M/B packet into a cellular M/B message, segmenting the IP M/B packet into a radio frame size, and transmitting radio frames of the IP M/B packet via a common channel to a mobile terminal. For at least similar reasons as set forth above, the applied references do not teach or suggest at least these features of independent claim 21. More specifically, Mustajarvi does not relate to converting an IP M/B packet into a cellular M/B message. Thus, independent claim 21 defines patentable subject matter.

For at least the reasons set forth above, each of independent claims 1, 10 and 21 defines patentable subject matter. Each of the dependent claims depends from one of the independent claims and therefore defines patentable subject matter at least for this reason. In addition, the

dependent claims recite features that further and independently distinguish over the applied references.

For example, dependent claim 2 recites that the BTS/BSC includes a LAC sub-layer and a MAC sub-layer. The LAC sub-layer including a link access controller (LAC) for storing the IP M/B packet, received from the BSC/PCF, into an internal buffer, and segmenting the IP M/B packet into the radio packet frame size for a cellular IP multicast/broadcast MAC protocol (CIBP). The medium access control (MAC) sub-layer for transmitting a CIBP service data unit (SDU), received from the CIBP at a lower layer of the LAC, into the mobile terminal via a physical layer. See also dependent claim 23. The applied references do not teach or suggest at least these features. The Office Action's citation to Mustajarvi's col. 3, lines 3-6 clearly does not suggest all these claimed features. As one example, the cited section does not relate to segmenting the IP M/B packet into the radio packet frame size for a cellular IP multicast/broadcast MAC protocol. Accordingly, dependent claims 2 and 23 define patentable subject matter at least for this additional reason.

Dependent claim 3 recites that the LAC allocates sequence numbers to the radio packet frames of the segmented IP M/B packet, and transfers the CIBP SDU into the CIBP. See also dependent claim 24. The applied references do not teach or suggest at least these features. The Office Action's citation to Mustajarvi's col. 3, lines 15-21 does not suggest these features. Accordingly, dependent claims 3 and 24 define patentable subject matter at least for this additional reason.

Still further, dependent claim 6 recites that the mobile terminal includes a MAC sub-layer and a LAC sub-layer. The MAC sub-layer having a physical layer for receiving the radio packet frames transmitted from the BTS, and a cellular IP multicast MAC protocol (CIBP) for transferring the received radio packet frames as a CIBP SDU into an upper layer. The LAC sub-layer for assembling data in the CIBP SDU transferred from the MAC sub-layer to form the IP M/B packet and transferring the IP M/B packet into an upper data layer. See also dependent claim 27. The applied references do not teach or suggest at least these features. The Office Action's citation to Mustajarvi's col. 2, line 66-col. 3, line 13 does not suggest all these claimed features. Accordingly, dependent claims 6 and 27 define patentable subject matter at least for this additional reason.

### **CONCLUSION**

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance. Favorable consideration and prompt allowance of claims 1-29 are earnestly solicited. If the Examiner believes that any additional changes would place the application in better condition for allowance, the Examiner is invited to contact the undersigned attorney at the telephone number listed below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this,

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concurrent and future replies, including extension of time fees, to Deposit Account 16-0607 and please credit any excess fees to such deposit account.

Respectfully submitted,  
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Attachments: Replacement Sheet  
Annotated Sheet

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**Date: September 14, 2006**

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FIG. 1

